

## Claims

1. A method for treating a vegetable material with a view to improving the solubility of the non-starch polysaccharides contained in it, **characterised** in that the material is crushed by mechanical energy to particles, at least a major portion of the cells containing non-starch polysaccharides in the material being damaged during crushing.
2. A method as defined in claim 1, **characterised** in that at least a major portion of the non-starch polysaccharides contained in the cells end up in particles as produced by the crushing with a particle size smaller than that of the respective initial cell of the non-starch polysaccharide.
3. A method as defined in claim 1 or 2, **characterised** in that the material to be crushed is formed partly or completely of grains of corn, such as oat, rye or barley, or fractions of these.
4. A method as defined in claim 3, **characterised** in that the material is crushed to a particle size less than 100  $\mu\text{m}$ , preferably less than 50  $\mu\text{m}$  and most advantageously less than 20  $\mu\text{m}$ .
5. A method as defined in claim 4, **characterised** in that the material contains aleuron and/or subaleurone layers of grains, which are crushed to a particle size less than 50  $\mu\text{m}$ , preferably less than 20  $\mu\text{m}$ .
6. A method as defined in any of the preceding claims, **characterised** in that the method yields improved solubility of  $\beta$ -glucan or pentosan.
7. A method as defined in any of the preceding claims, **characterised** in that the material to be crushed contains amylopectin or a material rich in amylopectin, such as waxy rice or waxy barley.
8. A method as defined in claim 7, **characterised** in that the material to be crushed contains amylopectin or a material rich in amylopectin mixed with another biological material containing non-starch polysaccharides, such as oat grains or their fractions.

9. A method as defined in any of the preceding claims, **characterised** in that the mechanical energy is generated by the joint effect of heat, pressure and shearing forces.

5 10. A method as defined in any of the preceding claims, **characterised** in that crushing is performed by extrusion using energy in an amount of 0.15-0.39 kWh/kg.

11. A method as defined in claim 10, **characterised** in that the material to be crushed is pre-treated to moisture in the range from 6 to 20% .

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12. A method as defined in any of claims 1 – 9, **characterised** in that the material to be crushed is mixed with a greater amount of liquid medium and the mixture is homogenised under a pressure of 50 to 800 bar.

15 13. A particulate product obtained by a method defined in any of the preceding claims, **characterised** in that the product contains a vegetable material, which has been crushed to form particles, in which at least a major portion of the cells containing non-starch polysaccharides in the material has been damaged, the non-starch polysaccharides having enhanced solubility in an aqueous phase with  
20 which the product has been brought into contact.

14. Use of a material treated by a method defined in any of claims 1 – 12 in a food or a fodder, in which the non-starch polysaccharides have improved solubility in the digestive tract.

25 15. Use of the material treated as in claim 7 for controlled viscosity increase.